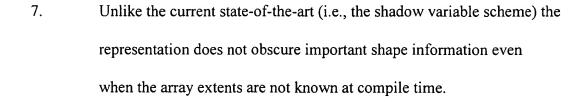## Claims

What is claimed is:

1.   A method ~~and process~~ for array shape inferencing for an array-based

language ~~such as MATLAB.~~

2.   The method enables a compact representation of shape at compile time.

3.   The highlights of the method are its generality and uniformity.

4.   The representation facilitates program-wide shape inferencing by

forward composing the individual shape-tuples.

5.   The representation does not depend upon any compile-time

overestimate of shape.

6.   The representation exactly captures the shape that the MATLAB

expression assumes at run time, even when program variables may be

unknown at compile time.

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7.   Unlike the current state-of-the-art (i.e., the shadow variable scheme) the
representation does not obscure important shape information even
when the array extents are not known at compile time.

5   8.   The framework exposes useful algebraic properties that underlie
MATLAB's shape semantics.

9.   The methodology of claim 8, wherein the algebraic properties can be
used for various compile-time optimizations such as reducing array
10   conformability checking and allocating memory in advance.

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